

WHAT IS CLAIMED IS:

1. A method of directing a stock worker to transfer stock items from various storage bins to containers according to a series of orders requesting desired quantities of specific stock items, wherein a light is associated with each bin, the method comprising:

- 5            assigning unique identifiers to each container;  
             illuminating a light associated with a bin holding a current item requested in a first order;  
             displaying a desired quantity of the current stock item;  
             assigning a container to the current stock item;  
10           displaying the unique identifier for the assigned container; and  
             repeating the light illuminating, quantity displaying, container assigning, and identifier displaying steps for subsequent stock items requested in the first and subsequent orders.

- 15           2. The method of claim 1, further comprising a step of indicating a direction of a bin associated with a subsequent requested stock item.

3. The method of claim 1, further comprising a step of signaling completion of a stock item pick before repeating the method for a subsequent stock item.

- 20           4. The method of claim 1, in which a central indicator is provided for displaying the desired quantity and the unique identifier, and in which a bin indicator is provided for each bin, each bin indicators incorporating the light associated with the bin.

- 25           5. The method of claim 1, in which an integrated bin indicator is associated with each bin, each bin indicator incorporating the light associated with the bin, a number display for displaying the desired quantity, and a container display for displaying the unique identifier.

- 30           6. The method of claim 1, in which the containers are incorporated into order assembling apparatus.

7. Apparatus for directing a stock worker to transfer stock items from various storage bins to containers according to a series of orders requesting desired quantities of specific stock items, wherein each storage bin contains an associated stock item, the apparatus comprising:

- 5           a plurality of lights, each light associated with a bin;
- at least one number display for showing a desired quantity of each stock item;
- at least one container display for showing a unique container identifier associated with a selected container into which each stock item is to be placed, wherein each container is assigned a unique identifier; and
- 10          a computer operably connected to the lights, the at least one number display, and at least one container display, wherein the computer receives the orders for the stock items and assigns a selected container to each stock item, directs the at least one number display to show the desired quantity of each stock item, directs the at least one container display to show the unique container identifier associated with the selected container
- 15          assigned to each stock item, and illuminates the light for the bin associated with the specific stock item, so that the stock worker is directed to transfer each stock item from the associated bin to the assigned container.

20           8. The apparatus of claim 7, further comprising a plurality of central indicators, in which each central indicator incorporates a number display and a container display, and wherein each central indicator is associated with a section of the bins.

25           9. The apparatus of claim 8, in which each central indicator further comprises an arrow display operably connected to the computer, the computer controlling each arrow display to illuminate an arrow directing the stock worker to a subsequent bin.

          10. The apparatus of claim 8, in which each central indicator further comprises a multi-purpose exception button operably connected to the computer.

11. The apparatus of claim 8, in which the lights are incorporated into bin indicators associated with the bins, each bin indicator further comprising a quitting switch operably connected to the computer and adapted to generate a pick complete signal.

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12. The apparatus of claim 7, further comprising integrated bin indicators associated with the bins, each integrated bin indicator including the number display, the container display, and the light.

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13. The apparatus of claim 12, in which each integrated bin indicator further comprises an arrow display operably connected to the computer, the computer controlling each arrow display to illuminate an arrow directing the stock worker to a subsequent bin.

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14. The apparatus of claim 12, in which each integrated bin indicator further comprises a quitting switch operably connected to the computer and adapted to generate a pick complete signal.

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15. The apparatus of claim 12, in which each integrated bin indicator further comprises a multi-purpose exception button operably connected to the computer.

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16. The apparatus of claim 7, in which several stock workers are assigned to primary bin sections, and in which the computer directs each stock worker to pick products from bins within the assigned primary bin section.

17. The apparatus of claim 16, in which the computer may override the assigned primary bin section to direct stock workers to heavy pick areas.

18. Apparatus for assembling orders requesting a series of desired quantities of specific stock items, the apparatus comprising:

a plurality of bins, wherein each bin holds a specific stock item;

a plurality of lights, each light having an associated bin;

5 a central conveyor positioned near the bins;

a plurality of containers positioned adjacent the central conveyor for temporarily holding stock items from the bins, each container having a unique identifier assigned thereto and including a dispenser operable to discharge stock items onto the central conveyor;

10 at least one number display for showing a desired quantity of each stock item;

at least one container display for showing the unique container identifier associated with a selected container into which each stock item is to be placed; and

a computer operably connected to the container dispensers, the at least one number display, the at least one container display, and the lights, wherein the computer receives the orders for the stock items and assigns a selected container to each stock item, directs the at least one number display to show the desired quantity of each stock item, directs the at least one container display to show the unique container identifier associated with the selected container assigned to each stock item, and illuminates the light for the bin associated with the specific stock item, so that the stock worker is directed to transfer each stock item from the associated bin to the assigned container, the computer further controlling the container dispensers holding a complete order to discharge at substantially the same point along the central conveyor.

19. The apparatus of claim 18, further comprising a plurality of central indicators, in which each central indicator incorporates a number display and a container display, and wherein each central indicator is associated with a section of the bins.

20. The apparatus of claim 19, in which each central indicator further comprises an arrow display operably connected to the computer, the computer controlling each arrow display to illuminate an arrow directing the stock worker to a subsequent bin.

21. The apparatus of claim 19, in which each central indicator further comprises a multi-purpose exception button operably connected to the computer.

5 22. The apparatus of claim 19, in which the lights are incorporated into bin indicators associated with the bins, each bin indicator further comprising a quitting switch operably connected to the computer and adapted to generate a pick complete signal.

10 23. The apparatus of claim 18, further comprising integrated bin indicators associated with the bins, each integrated bin indicator including the number display, the container display, and the light.

15 24. The apparatus of claim 23, in which each integrated bin indicator further comprises an arrow display operably connected to the computer, the computer controlling each arrow display to illuminate an arrow directing the stock worker to a subsequent bin.

20 25. The apparatus of claim 23, in which each integrated bin indicator further comprises a quitting switch operably connected to the computer and adapted to generate a pick complete signal.

26. The apparatus of claim 23, in which each integrated bin indicator further comprises a multi-purpose exception button operably connected to the computer.

25 27. The apparatus of claim 18, in which several stock workers are assigned to primary bin sections, and in which the computer directs each stock worker to pick products from bins within the assigned primary bin section.

28. The apparatus of claim 27, in which the computer may override the assigned primary bin section to direct stock workers to heavy pick areas.

29. Delicate product handling apparatus for use with stock order filling apparatus having a central conveyor for receiving stock items, the central conveyor having an upper surface and a discharge end, the delicate product handling apparatus comprising:

5 a transfer conveyor having a loading portion positioned adjacent the discharge end of the central conveyor and a discharge portion;

a plurality of trays attached to the transfer conveyor, each tray having an upper surface with a receiving end substantially aligned with the central conveyor upper surface to receive stock items from the central conveyor and a discharge end, wherein each tray is adapted to move to a discharge position at the discharge portion of the transfer conveyor, thereby to discharge the stock items from the discharge end; and

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a packing table positioned adjacent the discharge portion of the transfer conveyor, the packing table having a top surface with a rear edge substantially aligned with the discharge ends of the trays thereby to receive the stock items discharged from the trays.

15 30. The delicate product handling apparatus of claim 29, in which each tray is pivotably attached to the transfer conveyor, wherein each tray is rotated to the discharge position.

20 31. The delicate product handling apparatus of claim 30, in which each tray has an inflatable diaphragm associated therewith for rotating the tray to the discharge position.

25 32. The delicate product handling apparatus of claim 29, in which the packing table comprises a plurality of packing sections, and in which each tray is controlled to actuate to the discharge position at a selected packing section.

33. Delicate product handling apparatus for use with stock order filling apparatus having a central conveyor for receiving stock items, the central conveyor having an upper surface and a discharge end, the delicate product handling apparatus comprising:

5 a transfer chute having an upper surface with a first end positioned adjacent the central conveyor discharge end to receive stock items from the central conveyor and a second end, wherein the second end is lower than the first end so that the stock items slide from the first end to the second end under gravity force;

10 a chute swing arm pivotably mounted above the transfer chute and positioned to engage the stock items, the swing arm adapted to actuate between first and second positions thereby to direct the stock items to first and second sides, respectively, of the upper surface second end; and

a packing table having an upper surface positioned adjacent the second end of the chute upper surface adapted to receive the stock items from the transfer chute.

15 34. The delicate product handling apparatus of claim 33, in which the packing table comprises a plurality of packing sections.

20 35. The delicate product handling apparatus of claim 34, in which the packing table further comprises at least one swing arm pivotably mounted above the packing table upper surface and positioned to engage the stock items, thereby to direct the stock items to selected packing sections of the packing table.

36. The delicate product handling apparatus of claim 33, in which the packing table upper surface is sloped.